



Louisiana Wildlife Insider



p.2



p.12

IN THIS ISSUE

- P.1 Hunter Education at a Glance**
by John Sturgis
- P.2 How to Handle Black Bear Situations**
by Maria Davidson
- P.4 Preserving Isle Dernieres Barrier Island Refuge: A Highlight of the 2009 Whiskey Island Restoration Effort**
by Todd Baker and Cassidy Lejeune
- P.7 What Does DMAP Have to Offer?**
by Emile LeBlanc and Scott Durham
- P.8 Carrying Capacity**
by Scott Durham
- P.10 State Wildlife Grant Program and the Louisiana Wildlife Action Plan**
by Kyle Balkum and LeAnne Bonner
- P.12 Monitoring Songbirds to Measure Wildlife Habitat Quality**
by Donald "Duck" Locascio Jr.
- P.14 Wildlife Staff Directory**
- P.16 Coastal & Nongame Resources Staff Directory**



p.4

REMEMBER

TO TAG YOUR DEER THIS SEASON

Hunters must validate deer within 72 hours by calling the validation toll free number or by using the validation web site:

866-484-4805

<https://www1.la.wildlifelicense.com/start.php>

DEER HARVEST REPORT CARD
LDWF # 040-2038-178

- Record date and parish on carcass tag
- Attach tag to carcass before moving it
- Record date on harvest report card
- Report harvest at 1-866-484-4805 or www.wildlifelicense.com/la within 72 hours of kill
- Record confirmation number on harvest card
- Tag must remain attached to carcass until processed

TAGS INVALID IF REMOVED FROM REPORT CARD PRIOR TO USE.

ANTLERED DEER		
AG #	MM/DD	CONFIRMATION NUMBER
00486018191	9/20	9274321
00486018193	10/30	973512
00486018195	/	

ANTLERLESS DEER		
TAG #	MM/DD	CONFIRMATION NUMBER
100496018203	9/15	928567
00496018201	10/18	937221
00496018199	/	

Vendor: 001044 Terminal: 3705837
Tran # 002172243 10/02/2009 18:10

IMPORTANT: Do not remove the tags from the Deer Harvest Report Card until you have killed a deer; at that point the tag is removed from the Deer Harvest Report Card and attached to the animal. Tags removed from the Deer Harvest Report Card prior to killing a deer are no longer valid and if lost by the hunter will not be replaced. (Duplicate tags will be available to replace lost tags at a charge to the hunter.)

Hunter Education at a Glance

By John Sturgis,
LDWF Education
Program Manager

LDWF file photo



Note small size of the electric clay target thrower used during hunter education instruction.

The Louisiana Hunter Education Program has a 35-year history of making hunting a safer sport in Louisiana. Begun in 1974, it has come a long way and has gone through a number of changes to have evolved into its present form. The program was started by a handful of newly hired staff who embarked on a mission of developing a structured hunter education course, as well as recruiting and training a volunteer instructor force that now stands at 1,700 strong.

Methods of course delivery have progressed through the years. Old 16mm film projectors and flip charts have given way to computerized technology. PowerPoint presentations and interactive computer programs are now the norm. Clay target throwers used for live fire instructions were so large and heavy, they had to be towed on a utility trailer, but are now small enough to be loaded into the back of a pickup truck by one person (pictured above). Student records that were once entered into databases by hand can now be scanned and electronically submitted for storage. Students, who once had to contact a person by phone to register for a hunter education course, can now register completely on-line without having to speak to a person. The internet has provided a great opportunity for advancement in hunter education. People can now take a hunter education course on-line in the convenience of their own home, as well as access a number of other useful re-

sources. Knowledge of hunting incidents that went unconfirmed are now investigated by trained personnel, and results are entered into a national database that is analyzed and used in the prevention of future hunter incidents. The Louisiana Hunter Education Program has expanded through the years in its efforts to provide advanced training in weapons other than shotguns and rifles. Bow and muzzleloader hunter education courses are offered for those who enjoy the challenge of pursuing game with more primitive hunting equipment.

While new technology has allowed advancements in course delivery, some things do not change. One being the crucial role that volunteer hunter education instructors play in this important program. The backbone of the Louisiana Hunter Education Program has always been its volunteers who unselfishly dedicate countless hours of their personal time to give back to the sport of hunting. Without their service it would be a futile effort, and they are to be saluted for their accomplishments.

Similarly, while we utilize new technology and approaches to deliver our message to meet the cultural needs of each new generation, the message is always the same because the basic principles of safe firearms handling remains unchanged. No matter how many different ways we find to teach a person to handle a firearm safely, we strive for the same desired results - a person who is a responsible, knowledgeable and safe

hunter. In hunter education, we teach what is called the 10 commandments of firearms safety. These 10 commandments are intended to serve as guidelines for hunters to follow to prevent a hunting incident. If hunters would only observe the first four virtually every hunting incident could be prevented. They are:

1. Always point your firearms muzzle in a safe direction.
2. Keep your finger off of the trigger until ready to fire.
3. Be sure of your target, what is in front and beyond it.
4. Treat all firearms as if they are loaded at all times.

Remember these rules of safe firearms handling. Burn them to your memory and think about every move you make with a firearm when it is in your hands. Have a safe and successful hunting season. ■

FOR MORE INFORMATION

Specific information on hunter education classes can be found on the Louisiana Department of Wildlife and Fisheries website: <http://www.wlf.louisiana.gov/education/huntereducation/>



A curious black bear inspecting a deer stand.

How to Handle Black Bear Situations

By Maria Davidson, Large Carnivore Section Leader

The Louisiana black bear (*Ursus americanus luteolus*) once occurred throughout Louisiana, southern Mississippi and eastern Texas. Land clearing for agriculture in the Mississippi Alluvial Valley created a highly fragmented habitat, with more than 80 percent of the bottomland hardwood habitat having been lost. As a result of that loss and fragmentation, the three remaining black bear sub-populations were more or less isolated with little opportunity for genetic interchange (*Figure 1*). The U.S. Fish and Wildlife Service listed the Louisiana black bear as threatened in 1992 under the U.S. Endangered Species Act, citing habitat loss and fragmentation and human induced mortality (poaching and road kills) as primary threats. Since the listing in 1992, great strides have been made toward addressing the primary threat of habitat loss and fragmentation. Habitat protection and restoration activities have been focused on increasing contiguous forested habitat and providing forested corridors between habitat blocks. To date, 603,696 acres of bear habitat have been restored or acquired on both public and private lands.

The bear populations have responded well to the protection afforded through the listing and the additional forested habitat. Louisiana black bear populations throughout the state are growing and their ranges are expanding. Deer hunters can attest to this fact. Bears are showing up in record numbers on trail cams set to capture activity at deer feeders (*Figure 2*). Bear foraging activity increases in the late fall in order to put on the weight necessary to survive the food shortages of winter. Corn is a bear favorite and, when placed in areas inhabited by bears, is sure to draw them to the area. The best way to avoid attracting bears to your deer stand would be to plant food plots instead of baiting. For those hunters that prefer to use bait, it is advisable to use soybeans. For the majority of bears, the switch from corn to soybeans may be enough to drastically decrease the number of returns to the site. But there is the occasional bear that develops a taste for soybeans and continues to return for more. Another option is hanging the feeder out of reach of the bears (*Figures 3 and 4*). It should be at least 8 feet off of the ground and 4 feet away from the

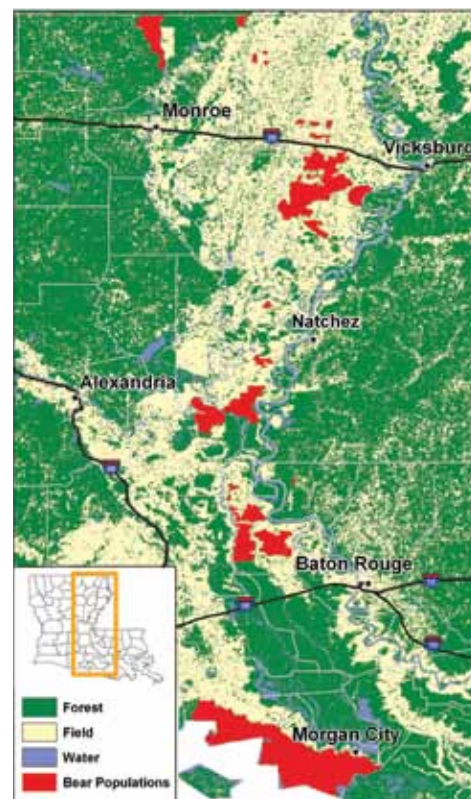


Figure 1. Black bear sub-populations in Louisiana.

tree or pole. Bears also are less likely to forage for grain on the ground dispensed from a timed feeder. They prefer to belly up to the bar at a trough or overturned feeder.

Bears are extremely inquisitive and will sometimes follow a hunter's trail to the stand. It is not uncommon for a bear to place his front feet on the ladder and peer up into the stand in an attempt to discover what is up there. This situation can usually be resolved by standing and moving about on the stand and speaking to the bear to allow him to see and hear you. Once their curiosity is satisfied, they usually go on their way.

Another encounter that sometimes occurs is a hunter moving through thick brush and running across a bear nest. Females readily nest on the ground to produce cubs. This occurs during the den season (late December through April). Ground nests are most often located in slash piles, felled tree tops, blackberry thickets and thick palmetto. This type of encounter is likely to cause the female to run away from her nest. The cubs will bawl loudly in protest at being abandoned. This vocalization will bring the female back quickly as soon as you leave the area.

Even hunters following all of the proper precautions can occasionally encounter a bear while hunting. Although bears are generally shy and for the most part try to avoid humans, hunting, by its nature, places humans in close proximity to bears. When a surprise encounter occurs, the best course of action is to detour around where the bear is feeding or resting. Go back the way you came and access your intended destination from another direction. If you unintentionally encounter a bear at close range; raise your hands above your head to appear larger than you are. Speak in a normal voice to allow the bear to identify you as human. Back away until it is safe to turn and WALK (DO NOT RUN) away. Bears have poor vision, but have a keen sense of smell. They will sometimes stand on their hind legs when faced with something they can't identify. They are trying to catch your scent to determine what they are encountering. In the unlikely event that a bear attack occurs, DO NOT PLAY DEAD. That is a technique used for grizzly bears. Fight back with anything available. Many times black bear attacks were stopped when the person fought back violently.

The best tip for insuring hunter safety and peace of mind is to carry bear spray. It is readily available on the web, affordable, easy to use and will send the most curious of bears running. There are several brands available, just be sure to buy a product labeled "bear spray." Most come with a convenient belt holster.

The majority of questions hunters have concerns their safety around bears. It is important for hunters to educate themselves about bears and bear behavior. They should take the proper precautions and remain aware while in the woods. Younger hunters should be coached on how to respond to bear presence, and be provided with bear spray and taught how to use it.

The goal of the Louisiana Department of Wildlife and Fisheries bear program is to restore bear numbers to a sustainable level that will allow for a bear season in the future. ■



Figure 2. (above) Deer and bear captured with trail cam.

Figure 3. (below) Raised deer feeders will limit damage by bears.



Figure 4. Deer feeder located within a winter plot and protected by electric fencing.

Photo courtesy of Walt Cofton

Photo courtesy of Sweeny Enterprises

Preserving Isle Dernieres Barrier Islands Refuge

LDWF file photo

A Highlight of the 2009 Whiskey Island Restoration Effort

2009 photo of Raccoon Island breakwaters. (Figure 3)

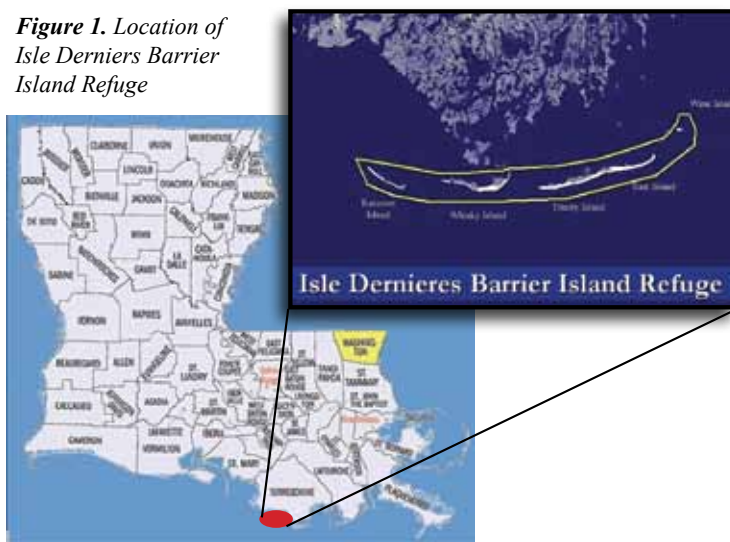
By Todd Baker, Coastal Operations Program Manager,
and Cassidy Lejeune, Coastal Operations Biologist

Isle Dernieres Barrier Islands Refuge (IDBIR) is a barrier island chain off the coast of Louisiana in Terrebonne Parish (Figure 1). The islands of the refuge are remnants of the Lafouche Delta Complex of the Mississippi Deltaic Plain Region. Approximately 1,200 to 2,000 years ago, the Mississippi River's primary distributary discharged into the Gulf of Mexico via the modern day Bayou Lafouche. When the river abandoned the Lafouche lobe about 400 years ago, rapid subsidence began, and marine erosion processes reworked the landscape causing extensive wetland/shoreline changes to occur. This process resulted in the creation of flanking barrier islands such as the five that make up IDBIR (Raccoon, Whiskey, Trinity, East and Wine islands).

IDBIR is also known as "Last Island," "Isle Derniere" or "L'Isle Derniere" and has an extensive history of settlement and/or utilization by humans. From Native Americans to private camps/resorts in the 20th century, this area has been used for fishing, hunting and a variety of other recreational activities. For example, during the 1800s, Isle Dernieres was a thriving coastal community and resort with hotels, supporting businesses such as gambling establishments and entertainment such as dancing, a whirlingig for children and boating excursions. It was a popular vacation resort for the wealthy until it was destroyed by a hurricane in 1856.

Louisiana Department of Wildlife and Fisheries (LDWF) has managed the islands as a refuge since 1992. The refuge is approximately 2,000 acres of beach, dune, swale and salt marsh habitats

Figure 1. Location of
Isle Dernieres Barrier
Island Refuge



which provide many functions and values to coastal Louisiana. It serves as important nesting habitat for brown pelicans, terns, gulls and a variety of other colonial seabirds, shorebirds and wading birds. It also is home to several terrestrial species of wildlife and serves as habitat for a variety of marine organisms and fish. It is a highly utilized area for recreational fishing and provides wave erosion protection to marshes from the Gulf of Mexico. It also serves

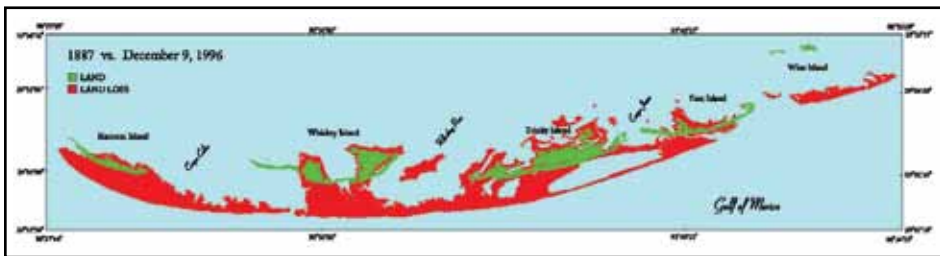


Figure 2. Land change 1887 vs. 1996 (Penland et. al. 2003)

as protection for coastal communities by reducing storm surge associated with tropical storms and hurricanes.

According to the National Wetlands Center, the Terrebonne Basin, which includes IDBIR, has the second highest erosion rate in Louisiana (Barras et al. 1994) (Figure 2.). It has experienced as much as 10.2 square miles of loss per year over the last few decades. Barrier islands are part of the final stages of delta degradation and are quite vulnerable to erosion. According to McBride et al. 1989, the Isle Dernieres barrier island chain is the most rapidly eroding coastline in the United States. A study by Penland et al. 2003 indicated that IDBIR is experiencing an average shoreline erosion rate of 38.7 feet per year on the gulf side and 8.2 feet per year on the bay side of the islands. Due to the extensive wetland loss at and in the vicinity of IDBIR, over 85 million dollars have been spent or allocated to keeping IDBIR from becoming a subaqueous shoal.

Coastal restoration at IDBIR began in 1991 when Wine Island was recreated by pumping dredge material from the Houma Navigation Canal onto the remnants of the island which had eroded to a shallow shoal. The project was funded via the Water Resources Development Act of 1986. The area

was wrapped with a rock dike and material was pumped to a +4 feet to +7 feet elevation. Also in the early 1990s, the development of large scale beach/marsh restoration projects were initiated via the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA). In 1999, the Isle Dernieres Restoration East and Trinity Islands Projects (TE-20 and TE-24) were created. These projects were designed to rebuild portions of these islands using a hydraulic dredge. The projects included marsh creation, dune creation, sand fences to trap wind blown sand and vegetation plantings. Subsequently, the Whiskey Island Restoration Project (TE-27) was constructed between 1998 and 2000. This project also utilized a hydraulic dredge to create a dune/marsh platform and fill in a breach of the island (approx. 657 acres). The project also included installation of sand fences and vegetation plantings. In 2007, a second hydraulic dredge project was implemented at Trinity and East Islands (New Cut Dune and Marsh Restoration Project, TE-37). This project included marsh and dune creation, beach nourishment, installation of sand fences and planting of native vegetation. The primary objective of this project was to solidify a breach between the two islands by widening the island in an area

known as "New Cut." Also in 2007, material was pumped from the Houma Navigation Canal to Wine Island in an effort to beneficially use dredge material to widen the island. Unfortunately, this project had minimal benefits due to the low quality of material pumped from the navigation channel and impacts from hurricanes Gustav and Ike. Overall, these projects were critical for the longevity of the islands. Without restoration, the islands were expected to disappear by 2004 (McBride et al. 1989).

A majority of restoration at IDBIR utilized a hydraulic dredge to borrow sediment from water bottoms to nourish the beach and bayside marshes of the islands. However, a different technique was utilized for Raccoon Island. In 1997, eight segmented breakwaters were constructed using large boulders along the gulfside of the island to reduce erosion (Raccoon Island Breakwaters Demonstration Project, TE-29) (Figure 3). This technique proved to be a successful way of decreasing erosion rates and, as a secondary/unanticipated effect, resulted in the trapping of sand deposits which increased the width of the island. Subsequently, eight additional breakwaters and a rock groin were added in 2007 to provide additional shoreline protection and trap sediment (Raccoon Island Shoreline Protection/Marsh Creation Project, TE-48). This project also includes a second phase that includes a marsh creation component (60 acres) and vegetation plantings. This phase of the project was expected to be initiated in late 2009 or early 2010.

In 2009, the preservation of IDBIR continued when a second restoration project at Whiskey Island was initiated. On February 11, the Louisiana Office of Coastal Restora-



Dredge and material pumped into dune creation site.

Photo courtesy of Weeks Marine



LDWF file photo



Photos courtesy of Weeks Marine

Figure 4. Aerial photo during dike construction of the Whiskey Island marsh creation site.



Figure 6. September 2009 aerial photo of material pumped into marsh and dune creation sites.

tion and Protection (OCPR) and the Environmental Protection Agency (EPA) issued a notice to proceed to Weeks Marine, Inc. to initiate the construction of a \$23.1 million restoration project designed to impede the erosion of Whiskey Island. LDWF Coastal and Nongame Resources Division biological staff coordinated with OCPR, EPA and Weeks Marine personnel on a routine basis to ensure LDWF management objectives were met.

In March 2009, Weeks Marine mobilized equipment (dragline, excavators, boats, barges, dredge pipe, etc.) and initiated the construction of a containment dike for the 316-acre marsh creation component of the project (Figure 4). During the dike construction process, Weeks also dredged experimental tidal creeks within the marsh creation site. These creeks were dredged to -6' NAVD 88 and were designed with the idea that differential settlement would cause the creeks to appear after the completion of the project. Spill boxes were also installed in the containment dike to allow for de-watering of the dredge material.

During the construction of the dikes, six Atlantic bottlenose dolphins were accidentally trapped in the marsh creation site. To rectify the situation, Weeks Marine (via input governmental agencies and the NOAA Marine Mammal Stranding Program) dredged a 100-foot breach in the levee to allow the dolphins to swim out of the area. Subsequently, a 30-inch hydraulic cutter head dredge called the "E.W. Ellefsen" was used to fill the marsh creation portion of the project. When pumping was initiated, the dolphins left the marsh creation area. Thus, no capture and release efforts were required.

Approximately 2.4 million cubic yards of dredge material from the Gulf of Mexico were pumped into the marsh creation area

to an elevation of +2.5' NAVD 88 (Figure 5). While building marsh, dike construction was initiated for the dune creation segment of the project. The dikes were created (in a previously designed alignment) to contain material for the 12,770 linear feet of dune that paralleled the Gulf shoreline for the entire length of the island. The cutter head dredge was used to fill the dune after the marsh creation component was completed. Approximately 242,000 cubic yards of material were pumped into the dune site to an elevation of +6' NAVD 88. In September 2009, Weeks Marine completed the hydraulic dredge work and initiated the final stages of the project which included grading/shaping of the dune, final elevation surveys, and demobilization (Figure 6).

Other activities that remain to be completed are the construction of 13,000 feet of sand fences, degrading of the containment dikes to +2.5' NAVD 88 on the east and west sides of the marsh creation site, back-filling of the access channel to the island, creating 70-foot gaps in the northern containment dike to allow for tidal exchange in creeks, dispersing bermuda and gulf rye grass, and possibly degrading the northern dikes on the bayshore of the island. In addition, OCPR has issued a contract to plant native marsh vegetation such as bitter panicum (*Panicum amarum*), sea oats (*Uniola paniculata*), wire grass (*Spartina patens*), black mangroves (*Avicennia germinans*), smooth cordgrass (*Spartina alterniflora*), seacoast bluestem (*Schizachyrium scoparium*) and seashore dropseed (*Sporobolus virginicus*). The vegetation was to be planted in the spring of 2010.

Thanks to federal and state government coordination, a significant amount of time and money have been expended to preserve IDBIR over the past 18 years. Restoration

such as the projects highlighted in this article has extended the lifespan of these fragile islands and provided goods and services to the general public. Outlook for future restoration funding is promising, and IDBIR is often considered when planning new projects due to its fragile condition. Frequent and repetitive restoration is needed at IDBIR to preserve Louisiana's coastal barrier island resources because natural causes and man's activities have changed the normal accretion process along our coasts. ■

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- Penland, S., C. Zganjar, K.A. Westphal, P. Connor, A. Beall, J.H. List, and S.J. Williams. 2003. Shoreline change posters of the Louisiana Barrier Islands, 1885-1996: U.S. Geological Survey Open-File Report 03-398, CD-ROM.

FOR MORE INFORMATION

For additional information about IDBIR, please call Todd Baker or Cassidy Lejeune at 337-373-0032.

What Does DMAP Have to Offer?

By Emile P. Leblanc, DMAP Coordinator,
and Scott Durham, Deer Program Leader

LDWF biologist conducting deer browse survey.

The Deer Management Assistance Program (DMAP) was initiated in the 1980s to allow additional antlerless deer harvest opportunity where the season limit was not adequate to reach management objectives. Additionally, there was an emphasis on reducing the harvest of 1.5-year-old bucks when hunters expressed the desire to shoot better quality bucks. Promoting deer densities that are in balance with the habitat and herds with more even sex ratios and better age structures are fundamental principals that more recently have become known as quality deer management (QDM).

DMAP has been a very important and successful program, allowing Louisiana Department of Wildlife and Fisheries (LDWF) field biologists an excellent way to interact with the public and educate hunters about good wildlife conservation methods and principals. The Landowner Antlerless Deer Tag Program (LADT) followed and was created for smaller landowners with less management capability, but the same need for additional antlerless deer harvest. LADT also addresses growing nuisance deer issues in less rural habitats, thereby giving increased opportunities to reduce deer numbers in suburban areas. DMAP enrollment started to experience a decline when the LADT rules were changed to allow larger acreages to participate.

With the recent implementation of statewide deer tagging, both programs have seen additional drops in participation. However, the need for ecologically and scientifically sound management of private lands has never been greater. Adequate deer harvest is a fundamental component of good land stewardship, and harvests should be based on habitat parameters, deer population and unique environmental variables.

The goal of DMAP continues to be to

offer interested hunters, landowners and managers in-depth, professional technical assistance in managing deer populations and their habitats. Secondly, the program seeks to educate participants on sound deer management and wildlife habitat principals across the state. LADT provides basic information and continues to offer increased harvest opportunity on smaller acreages and where nuisance deer issues exist.

Besides assisting landowners and hunting clubs with technical assistance in managing and conserving local wildlife populations, the deer program gains detailed statewide harvest information that is used to make inferences to the deer population status and make management decisions such as season length and bag limits. Managing deer populations are vital to maintaining native plant diversity and viability, forest ecosystem health, public safety and traditional cultural richness.

DMAP clubs have played a vital role in assisting LDWF track diseases. A recent example was the blood collection effort to identify the prevalence and range of the new strain of bluetongue (BTV1) identified in south Louisiana in 2006. Statewide sampling efforts for chronic wasting disease would have consumed considerably more time of staff biologists without willing hands from our DMAP cooperators. Likewise, the recently completed bottomland hardwood deer movement and survival research would not have been possible without the cooperation and support of several major landowners enrolled in DMAP. Our ongoing parish breeding chronology research will continue to refine the different breeding periods across the state. Landowner relationships and DMAP cooperators have been vital to the success of the deer program, and continue to be very important

in attaining deer program objectives.

The deer program, primarily through DMAP, is committed to providing technical assistance based on the most current scientific principles and our personal field experiences. Services offered to participants enrolled in DMAP include browse and habitat surveys every three years with accompanying reports and recommendations designed for the management objectives that cooperators choose. Included in the reports are annual harvest reports and harvest and habitat recommendations. Presentations at club meetings are provided as requested. Herd health checks and breeding studies are performed as needed. LDWF private land biologists can assist cooperators with habitat and forest management, camera surveys (to establish population indices) and mast surveys (to establish a mast species inventory). Stomach analyses can also be performed to determine what plants are being utilized during the winter months, which can provide insight into how hunters might improve harvest strategies. In addition, pellet and track count cruises can be established to develop an additional population index to supplement other surveys. The various surveys establish base-line data for the property and, when collected over time, can document deer physical characteristics and/or population trends. The observation log was developed and distributed to cooperators as well as other interested persons to provide parish deer indices. Information gathered from these logs can track differences in population levels from different habitats and physiographic regions over time. The cooperator also has a direct line of communication for any disease issues and diagnosis that might arise on his property.

The \$25 enrollment and \$0.05/acre DMAP fee has not increased since its beginning. New research in intensively managed bottomland hardwoods has revealed that it may be possible to manage smaller properties for quality deer. Management potential increases when working with neighboring landowners or forming associations to increase the size of the management unit.

If you are interested in enrolling your property in DMAP, additional information can be obtained from our web site (<http://www.wlf.louisiana.gov/hunting/programs/animals/dmap.cfm>) or one of our private lands biologists located at our wildlife offices across the state. ■

FOR MORE INFORMATION

You may also contact Emile LeBlanc, DMAP Coordinator, at 225-765-2344 or by email at eleblanc@wlf.la.gov.

Carrying Capacity

By Scott Durham,
Deer Program Leader

The term “carrying capacity” (CC) refers to the number of animals that a particular habitat can support over time. It is not constant or simple, but is an intricate mix of a number of factors that are changing all of the time. CC can change daily at fine levels or monthly with the changing of the seasons as environmental factors affect habitat. On a longer term, landscape level changes such as human development, forestry and agricultural practices impact CC. Deer biologists spend a good deal of time trying to determine the CC for individual tracts of lands within the different habitat types across the state. From their assessments, they recommend harvest rates and then compare them to historical data for a club or region. This process allows deer biologists to make informed habitat management and harvest recommendations to hunters, landowners and wildlife managers. There is no substitute for experience, including working knowledge of soils, plants and forestry practices. There is usually not just one way to accomplish your goals, truly illustrating why wildlife management has been coined as “an art and a science.” Determining CC is a perfect example of this adage.

A very simple conceptual example of CC is to think of a pasture with cows. The number of cows that pasture can support depends on the kind of grasses, rainfall, soil type and condition, temperature and time of year, to name the basic variables. Even this simple example illustrates how CC is always changing because the seasonal CC is less during a drought period than it would be if rainfall was providing normal moisture levels to the soil and grass. During the dormant season, the grass is not growing, but the cattle must be able to make it on whatever food is still available. That is why cattle producers generally have a backup plan - hay, feed or a secondary place to take those cattle if pasture conditions deteriorate sufficiently to no longer support the herd.

A mixed pine/hardwood forest is far more diverse above the soil horizon than a simple pasture. Instead of only grass and cows, there are hundreds of herbaceous and woody plants, all competing for sunlight and nutrients. In addition to the plants, there are insects, amphibians, reptiles, birds and mammals. Each group of plants and animals is part of a complex web of life, and



Figure 1. Young hardwood stand will produce hard mast in the future. Mast trees are especially important on poor soils or low productivity habitat. A period of lower browse availability must be endured in some portions of a tract to achieve the desired timber stand.



Figure 2. Dense hardwood mid-stories must be inventoried. If undesirable regeneration is present, appropriate management action may need to be taken to promote more desirable species.

each specimen in some way or another is contributing or taking away something that another requires to survive in the long term. When things get too crowded in nature, the backup plan initially is lower productivity or reproduction. Next may be dispersal or emigration and ultimately natural mortality through increased predation, high parasite levels and disease.

The practical length of time to consider relative to deer CC is probably at least a year. Variations in terms of body characteristics such as antler development, weights and lactation rates can easily be observed in the harvest data. Although it is extremely difficult to quantify the impact of any one of these items individually, biologists consider annual fluctuations in precipitation, mast crops, temperature, flooding, insect popula-

tions, predator and competitor populations, and disease prevalence as factors affecting deer production, abundance and, ultimately, harvest.

Now we introduce another term, “lag,” which occurs when environmental and habitat impacts are not fully expressed until some point in the future. For example, an extremely dry June could increase the incidence of hemorrhagic disease later that summer and fall, resulting in a 25 percent mortality event in an area. The deer population is now lower there, possibly favoring the deer that remain due to less competition for food sources.

In another example, back to back hard spring freezes removes the white oak mast for two years and the red oak mast for one year, reducing the average seasonal CC of

LDWF file photos



Figure 3. Mixed pine hardwood stands often offer the most diverse array of deer browse species in the understory.



Figure 4. This pine plantation has good browse availability, but unless complimented with mast bearing species along stream side management zones or adjoining tracts, it will not have the productivity or long-term carrying capacity desired by many hunters.

deer, especially the second year, when there is a complete mast failure. A pregnant female will go into the spring in poorer condition. If deer numbers are too high and there is a summer drought, then browse and its nutrient content will be even lower. There may be less milk for her fawns and more stress on the doe, perhaps making her a less successful mother. Her fawns will be smaller and have lower chances of survival. If she were a normal 3.5-year-old doe on average to good habitat, she should have two fawns. But if she loses one of them, there is a 50 percent reduction in recruitment from this individual. If this happens across a larger sample of females, the results will be an overall reduction in recruitment and deer available for harvest in succeeding years. The same does may not breed on their first,

or even second, estrus cycle the next season if their body conditions do not improve. The resulting late born male fawns likely will exhibit poorer antler development as young bucks due to the late and suppressed start.

To understand the long-term CC of a tract of land or habitat type, an entire forest cycle must be considered. Even within the same soil region, a short-rotation pine plantation that is intensively managed for fast growing pulpwood or chip products, will have a different average annual deer CC than a more plant-diverse, long-rotation mixed pine/hardwood stand managed for sawtimber. The forestry management objectives are different, and thus the forest management regime is different.

Recent research in pine plantations il-

lustrates the complexities of habitat quality. Mechanical, chemical and prescribed fire treatments and the timing of these management techniques have varying effects on plant composition and browse quantity and quality. Broadcast herbaceous weed control reduces forage biomass significantly more than banded herbaceous weed control (herbicides applied on a narrow strip along the planted trees) (Jones et al. 2009). When an exotic woody plant, such as Chinese tallow (*Triadica sebifera*) or even a native like sweetgum (*Liquidambar styraciflua*), become dominant in the under or mid-story, management action may be necessary to improve wildlife habitat and forest regeneration. Selective herbicide and prescribed fire application can be used to increase important deer forages in these situations (Mixon et al. 2009).

The accompanying photos from the same tract of land illustrate a variety of habitat conditions that are common to Louisiana.

The department's deer program is developing a joint research project with Louisiana State University that will provide further insight into deer CC across several of the state's physiographic regions. Plants that are important to deer will be measured and analyzed for nutritional composition across the state (Moreland 2005). This information will help biologists and deer managers better understand habitat potential and assist them in educating hunters about realistic expectations concerning deer numbers. ■

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State Wildlife Grant Program & the Louisiana Wildlife Action Plan

By Kyle F. Balkum, *Biologist Program Manager*, and LeAnne Bonner, *State Wildlife Grants Coordinator*

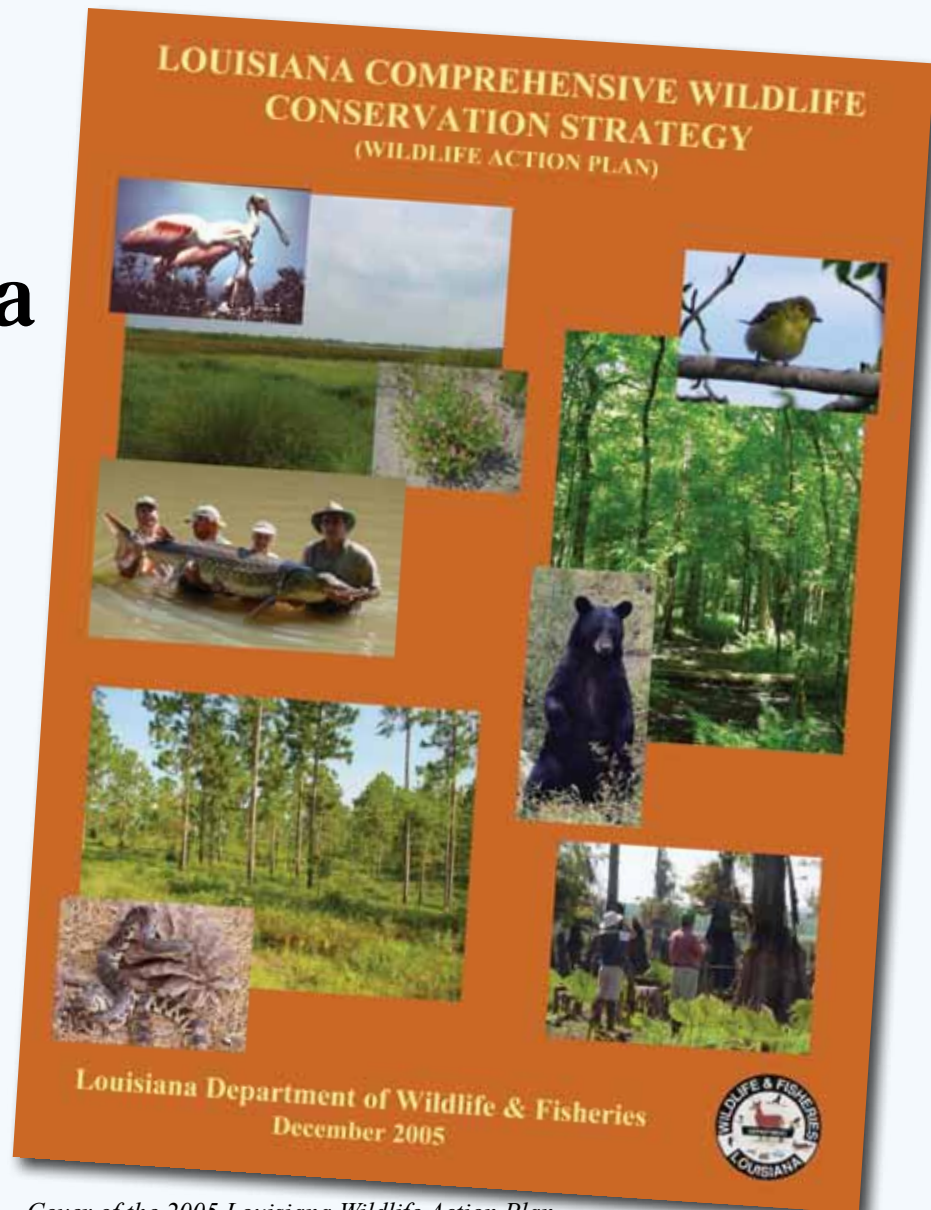
This September marks the 10th anniversary of a federal assistance directive known as the State Wildlife Grant (SWG) Program. These grants were established “for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished.” These funds typically support research on species in decline that are unlikely to receive dependable support from other programs. SWG receives annual Congressional appropriations that are administered by the U.S. Fish and Wildlife Service (USFWS). USFWS, in turn, apportions these funds to fish and wildlife agencies in the states, territories and tribes. Since 2002, The Louisiana Department of Wildlife and Fisheries annual apportionment has been approximately \$1 million.

As the SWG program was developed, Congress stipulated that each state fish and wildlife agency that wished to participate must develop a Comprehensive Wildlife Conservation Strategy by October 2005. In response, LDWF developed a planning document, Louisiana’s Wildlife Action Plan (WAP), that would guide the department’s use of SWG funds for 10 years. Our WAP was approved in 2005, guaranteeing that LDWF would continue to receive SWG funding through 2015.

SWG and our WAP are separate but closely associated elements involved in the conservation of species in decline. State Wildlife Grants were created to fund research and implement conservation strategies for the benefit of wildlife and the habitats that support them; the Wildlife Action Plan is the blueprint guiding the use of those funds.

What is inside the WAP?

The 455-page WAP describes wildlife and fisheries resources in Louisiana, explains which species and habitats may need conservation attention and provides several strategies to prevent those species or habitats from becoming endangered. The WAP has four major goals: species conservation; habitat conservation; public outreach and education; and partnership building. There are 240 species of conservation concern in the WAP. This includes amphibians and reptiles (45 species), birds (69 species), mammals (18 species), fish (41 species), crawfish (14 species) and freshwater mussels (30 species).



Cover of the 2005 Louisiana Wildlife Action Plan

Proposals for SWG funding must address conservation strategies and research priorities for wildlife and fisheries species of conservation concern listed in WAP.

What have we done so far?

Since our WAP was approved, we have funded more than 50 independent projects focused on Louisiana’s species of greatest conservation need. We attempt to award a broad array of project types addressing different species and habitats of concern. These projects have provided answers to questions about the declines of wildlife species, defined the habitat requirements of species of concern and increased habitat through management techniques. LDWF is committed to continuing with these objectives through 2010. We have approved 12 new projects for funding thus far. This new research will be comprehensive, with a range of conservation objectives that includes amphibian monitoring, grassland restoration and endangered species management - including the reintroduction of a Louisiana native, the whooping crane.

Examples of SWG funded projects

“Monitoring Avian Productivity and Survivorship Study” (SWG No. T-30)

LDWF manages approximately 1.4 million acres of wildlife management areas (WMAs) and refuges throughout the state - much of which is forested. Our forestry management practices may affect millions of individual birds. Therefore, the objective of the ongoing Monitoring Avian Productivity and Survivorship Study (MAPS) is to assess the effects of LDWF’s silviculture practices (i.e., shelterwood harvest, group/individual selection harvest and no-harvest) on breeding landbird populations in a bottomland hardwood ecosystem. The results of the MAPS study

will be used to guide our forest management decisions.

To accomplish this objective, LDWF operates bird banding stations during bird breeding seasons. The banding stations are located at Sherburne and Pearl River WMAs, which offer superb habitat for many nongame bird species. Fourteen species of nongame birds listed in the WAP as species of conservation concern regularly utilize both WMAs (e.g., yellow-billed cuckoo, wood thrush, prothonotary warbler, Swainson's warbler, painted bunting) (Figure 1).

In 2010, LDWF is completing the seventh year of the MAPS study. A minimum of 10 years of MAPS banding is desirable to determine avian population response. In addition to assessing local population trends, we participate in the nationwide MAPS program, which also allows researchers to assess regional breeding land-bird population trends.

"Locality Data for Bats in Northeastern Louisiana"

(SWG No. T-10-3 – Completed in 2009)

Rafinesque's big-eared bat and the southeastern myotis are two species of concern, both in Louisiana and the southeastern United States. From July 2008 through June 2009, 15 sites within Louisiana were repeatedly searched for bats and signs of their presence. During these surveys, 63 new roost sites were discovered in Union, Ouachita and Caldwell parishes. Although one roost was discovered in an abandoned well, roost sites were typically found in water tupelo and bald cypress tree cavities. The information gathered about these roost sites helps the LDWF further understand the population status, distribution and habitat requirements of these species in Louisiana. This study was part of an ongoing, long-term project conducted by the Louisiana Natural Heritage Program to inventory many rare species throughout the state.

"A Survey of Fishes Inhabiting the Pearl, Tchefuncte and Tangipahoa River Systems in Louisiana"

(SWG No. T-49 – Completed in 2009)

Of the 41 species of fishes listed as species of conservation concern in the WAP, 14 occurred historically in river systems located in the Southeastern Plains and Southern Coastal Plain ecoregions of southeastern Louisiana (including all or parts of Livingston, St. Helena, St. Tammany, Tangipahoa and Washington parishes). In order to document the current distribution and status of these species, the Tangipahoa, Tchefuncte, Pearl, Bogue Chitto, Pushepetapa and Bogue Lusa rivers were sampled using seines and electro-fishing gear in 2007 and 2008. A total of 74 species were captured and identified. Four of the species collected are listed as species of conservation concern: gulf sturgeon in the Bogue Chitto;

blue sucker in the Pearl River; frecklebelly madtom in Pushepetapa Creek; and flagfin shiner in Bogue Lusa Creek and tributaries of the Bogue Chitto River (Figure 2).

"Herpetofaunal Surveys on Wildlife Management Areas"

(SWG Nos. T-03, T-05, T-06, T-17, T-24, T-26 – Completed between 2005-2008, SWG Nos. T-78, T-85 – Current)

Six SWG projects have included herpetofaunal (i.e., reptiles and amphibian species) surveys of bottomland hardwood ecosystems on WMAs. A total of 20 WMAs were surveyed from 2003 to 2006. Most of these projects gathered baseline survey information essential to the development of the WAP. The common objectives of these projects were to estimate relative abundance, species composition and habitat utilization of amphibians and reptiles on WMAs. The projects also resulted in new species occurrence records for several parishes. The studies utilized several survey and sampling methods, including visual encounters, Anuran call surveys, drift fences, pitfall traps, funnel traps, cover board surveys and aquatic trapping (Figure 3).

In 2010, we have begun two new studies focusing on herpetofaunal diversity through much of Louisiana. Researchers plan to sample aquatic herpetofauna in various wetland types on Boeuf WMA to evaluate species diversity as it relates to habitat type and quality. In another study, LDWF will sample a range of reptiles and amphibians from various sites throughout central and eastern Louisiana, developing long-term monitoring stations to help us evaluate any changes in diversity and richness as relatively unaltered landscapes are exposed to development or fragmentation.

Conclusion

Since its start, the State Wildlife Grant Program has funded more than 80 projects in Louisiana. The initial years of the program have provided much information concerning species about which we previously knew very little. That knowledge laid the foundation for the Wildlife Action Plan. With the plan in place, an outline now exists that will guide research and management decisions with the ultimate purpose of preventing wildlife and fisheries species from becoming endangered.

LDWF's mission is to manage, conserve and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats for the social and economic benefit of current and future generations. State Wildlife Grants and the Wildlife Action Plan have become an increasingly important part of that mission during this first 10 years of research and conservation, and LDWF only anticipates greater achievements through SWG as this program continues in the years to come. ■

Photo courtesy of Grant Therkildsen

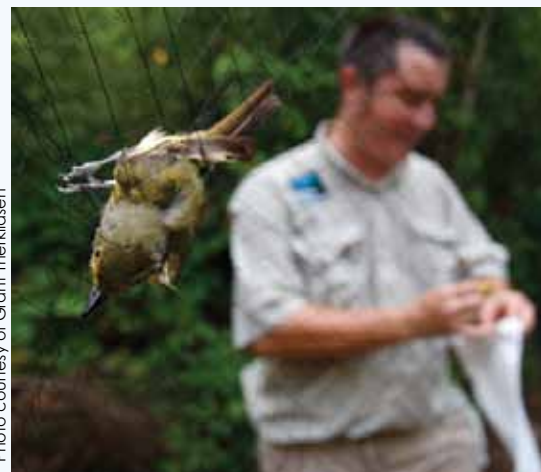


Figure 1. A white-eyed vireo waits to be removed from a MAPS mist net. Mist nets are made of fine thread which makes the nets essentially invisible to flying birds, ensnaring those that attempt to fly through the nets.

Photo courtesy of Ryan Daniel



Figure 2. LDWF Inland Fisheries Division hoop net sampling.

Photo courtesy of Ben Thatcher



Figure 3. The Gulf Coast mud salamander, uncommon throughout its range, is listed as a species of conservation concern in the WAP. A new herpetofauna survey (T-85) will include known areas of occurrence to further document its population status in Louisiana.

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<http://www.wlf.louisiana.gov/experience/wildlifeactionplan/>.

A previously banded White-eyed Vireo is recaptured in a mist net located on Pearl River WMA. The damaging winds of Hurricane Katrina destroyed much of the forest canopy which has provided exceptional habitat for this species.

LDWF file photo

Monitoring Songbirds to Measure Wildlife Habitat Quality

By Donald "Duck" Locascio Jr., Wildlife Biologist/Forester

Louisiana is home to numerous species of wildlife that utilize a variety of habitats. As wildlife managers, it is important to recognize their individual habitat requirements and understand that specific forest management practices may benefit some species while being detrimental to others. Some species require shrub/scrub habitat like that found in young plantations or the result of large scale natural disturbances, while other species require open park-like habitat found in closed canopy mature forests. Most species thrive in forested habitat somewhere between these two extremes, requiring a combination of these very different habitat types at different times of their life cycle, different times of the year or even different times of the day.

For example, wild turkey equally utilize a closed canopy forest with an open understory of low ground cover for brood habitat, but have higher survival rates when escape cover of dense understory is nearby. During the nesting season, turkey hens select areas of dense understory and a well-developed midstory. These areas provide overhead cover for protection from avian predators. American woodcock spend their daylight

hours in areas of extremely dense midstory and understory but move to open areas and fields during the night to forage. Wildlife managers must have an understanding of each species' habitat requirements as well as the technical skills to create the desired habitat conditions.

No group of wildlife demonstrates the importance of and need for a diverse habitat more than nongame songbirds. Forested habitat that is structurally diverse holds higher numbers of birds and a greater variety of species than a homogeneous forest. Many species of songbirds experiencing sharp declines in the Mississippi Alluvial Valley (MAV) are disturbance dependent. Birds such as Kentucky, Swainson's and hooded warblers are dependent on complex, multi-layered vegetative cover resulting from natural disturbances such as tornadoic events and hurricanes which cause tree fall gaps within a contiguous forested landscape. Forest management that mimics these natural events benefits these songbirds and enhances habitat for a wide array of wildlife found in bottomland hardwood habitat. By managing hardwood timberlands using uneven-aged management, a

more diverse forest is produced which satisfies the habitat requirements of the greatest number of users.

To better understand the influences timber management has on wildlife and to improve the effectiveness of such activities, Louisiana Department of Wildlife and Fisheries (LDWF) biologists continually study wildlife response to timber harvests on our wildlife management areas (WMAs). In the MAV, two methods have been implemented to measure the response of songbirds to several forest management techniques. Biologists sample bird usage by conducting point counts, and they participate in a multi-state research program called Monitoring Avian Productivity and Survivorship (MAPS) on several WMAs.

Point counts involve recording birds observed, whether visually or audibly, at predetermined points in a forested stand over 10-minute intervals. A variety of forest habitat characteristics are recorded at each point. Point counts are established in several managed stands annually as well as natural stands which have received no commercial timber harvest. Bird density and diversity can then be compared across the various forest habitats found on LDWF WMAs as a result of timber management and natural processes.

MAPS is a tool biologists use to evaluate bird response to habitat management; however, MAPS also allows managers to assess the productivity of birds. At MAPS stations, birds are captured using mist nets, banded and released. Upon capture, all birds are aged, sexed and weighed. The breeding status of each bird is also determined during the initial capture. By recapturing individuals at a later time, managers can assess species health, evaluate productivity, determine species density and examine their affinity to a particular site. The capture of young birds during the spring allows managers to determine the productivity of study sites, as well as track survivorship of young birds over time.

Songbirds are often the first to respond to changes in their environment. By studying disturbance-dependant songbirds, wildlife managers can assess the productivity of habitat for all wildlife that thrive in structurally diverse forests. By manipulating forest habitat through timber harvest, managers can create desired habitat conditions across landscapes for the greatest diversity of wildlife. ■



LDWF file photos

Swainson's warbler, a species of high conservation importance, breeds in bottomland hardwood forests consisting of dense midstory and understory vegetation.



Hooded warblers are a species of disturbance-dependent wildlife which inhabit large continuous forest with an extensive shrub layer. These birds nest in small gaps of very thick underbrush.



The yellow-breasted chat prefers dense, shrubby vegetative habitat with a relatively open canopy. It is the largest of all wood-warblers.



A red-eyed vireo is capture in a mist net in the Atchafalaya Basin. Red-eyed vireos are found in mature, open forest with a closed overstory canopy.



Mist nets are erected in cleared lanes within the forest to capture birds. Each net is 10 feet tall and 90 feet long. Nets are visited frequently to collect captured birds to be banded.



Wildlife biologist band birds and record valuable information which is used to evaluate the habitat quality for each species.



An American redstart is banded and ready for release. Redstarts require a multilayered forest with a well developed shrub layer.

Species commonly encountered during point counts and at MAPS stations on LDWF WMAs

Acadian Flycatcher
Great Crested Flycatcher
Eastern Wood-Pewee
White-eyed Vireo
Red-eyed Vireo
Carolina Chickadee
Tufted Titmouse
Carolina Wren
Blue-gray Gnatcatcher

Northern Parula
American Redstart
Prothonotary Warbler
Swainson's Warbler
Kentucky Warbler
Common Yellowthroat
Hooded Warbler
Yellow-breasted Chat
Summer Tanager

Eastern Towhee
Wood Thrush
Northern Cardinal
Indigo Bunting
Painted Bunting
Orchard Oriole
Yellow-billed Cuckoo
Red-bellied Woodpecker
Pileated Woodpecker

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ROCKEFELLER REFUGE COASTAL OPERATIONS



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HABITAT IS THE POINT



Photo courtesy of Leo Michels

Photo courtesy of Wikimedia Commons

Elderberry (Sambucus) is common plant found throughout Louisiana that provides food for many songbirds, game birds, squirrels and deer. People use the berries to make wine, pies and jellies.



LDWF file photo

In the 1960s, the area in this photo was a cotton field on Red River WMA. Today, a stand of 30 year old cherry bark oaks, which were planted by hand, grow creating a hardwood forest that supports many wildlife species.

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for
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